

REMARKS/ARGUMENTS

Claims 1-14 and 16-43 are pending. Claims 1, 17, 27, 28, 30, 31, 33, 41, and 42 have been amended. Support for all amended claims can be found in the specification, and no new matter has been added by these amendments.

Claims 1-8, 16-21, 23-33 and 37-42 were rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,292,800 to Eldreth.

Claims 9 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Eldreth in view of U.S. Patent No. 6,985,956 to Luke et. al (hereinafter "Luke").

Claims 11-13, 22, 34-36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Eldreth in view of U.S. Published Patent Application No. 2003/0154236 to Dar et. al (hereinafter "Dar").

Claim 43 is rejected under 35 U.S.C. §103(a) as being unpatentable over Eldreth in view of U.S. Published Patent Application No. 2005/0015415 to Garimella et. al (hereinafter "Garimella").

The undersigned would like to thank the examiner for granting an interview to discuss the case. The interview was conducted on December 14, 2006. The Eldreth reference was discussed and possible additional limitations to the claims were presented. Though the examiner indicated that such limitations might distinguish over Eldreth, no agreement was reached.

Reconsideration of the claims in view of the amendments and the following remarks is respectfully requested.

Rejections under 102

Claims 1-8, 16-21, 23-33 and 37-42

Applicants have amended independent claims 1, 17, 28, 30, 31, 33, 41 and 42 to further clarify the separate data paths provided in the various embodiments of the present invention to avoid the bottlenecks that may be created by transmitting query results over a local area network connection.

For example, claim 1 recites a system for enabling queries to a database to be processed comprising:

- a database system;
- an application system for providing queries to a database system, the database system coupled to the application system via a first connection over a network;
- a storage system having a shared volume to store results from queries made to the database system;
- a first data path to provide a data connection between the storage system and the application system, wherein the application system can directly access query results on the storage system without communicating via the first connection;
- a second data path to provide a data connection between the storage system and the database system, wherein the database system directly stores query results to the storage system via the second data path without communicating via the first connection; and
- a return path selector coupled to the database system for selecting a return path over which to return the results from queries made to the database system, the return path selector selecting from among at least the first connection over the network or the first data path between the storage system and the application system, wherein the return path selector determines a data path based upon one or more attributes of the query results.

Eldreth discloses a database access method including receiving a data request at a switcher system from another computer, selecting a connection to a database system from among a collection of connections, and communicating with the database system across a selected connection to fulfill the data request. Eldreth, Abstract.

Applicants submit that Eldreth fails to disclose a return path selector as recited in claim 1. According to amended claim 1, the return path selector determines a return path for the query results based upon attributes of the query results. The return path selector selects a return path from among at least the first connection over the network and the first data path between the storage device and the application system. If the first data path is selected, the query results are not transmitted over the network connection. Instead, the database system provides the query results to the storage system via the second data path, and the application system accesses the query results stored on the storage system via the first data path. Thus, the embodiment recited in claim 1 may advantageously avoid transmitting large result sets over the first network connection.

Applicants submit that Eldreth fails to teach at least "a return path selector coupled to the database system ... selecting from among at least the first connection over the network or the first data path between the storage system and the application system" as recited in claim 1. Eldreth fails to disclose at least providing an alternate path for returning query results such that the query results are not transmitted over the first network connection. Query results in

Eldreth are transmitted over at least two network connections: (1) a network connection between the ADB switcher and each database system that the ADB switcher queried; and (2) a network connection between the ADB switch and the application server. See Eldreth, Fig. 2 (network connections 205-209 link application servers 201 and 202 to ADB switchers 211-213; network connections 221-231 link ADB switchers 211-213 to database systems 231-234). Eldreth, however, is silent as to providing alternative data paths for returning query results without communicating across the network connection as recited in claim 1.

Applicants also submit that Eldreth fails to teach at least "a first data path to provide a data connection between the storage system and the application system, wherein the application system can directly access query results on the storage system via the first data path" without communicating over the network, and also fails to teach "a second data path to provide a data connection between the storage system and the database system, wherein the database system directly stores query results to the storage system via the second data path" without communicating over the network as recited in claim 1.

As described above, communication between the components in Eldreth occur over a plurality of network connections: application servers 201 and 202 in Eldreth are coupled to ADB switchers 211-213 via network connections 221-231, and ADB switchers 211-213 are coupled to database systems 231-234 via network connections 221-231. See Eldreth, Fig. 2. In Eldreth, the various database systems merely connect to different application servers via the ADB switchers. Query results from the various databases are transmitted to the ABD switcher via a set of network connections.

Applicants submit that Eldreth does not disclose that the database systems are connected via a data path to a storage system whereby the database systems can directly store query requests on the storage system without communicating over the network. Even if an ADB switcher is, for the sake of argument, a storage systems as recited in claim 1, Eldreth still fails to disclose a data path to an ADB switcher from an database server that allows the database server to directly store query results in the ADB switcher without communicating across the network. Furthermore, Applicants submit that Eldreth does not disclose that the application servers are connected via another data path to a storage system, whereby the application systems can directly access query results without communicating over the network. Again, even if an ADB switcher was, for the sake of argument, a storage systems as recited in claim 1, Eldreth still fails

to disclose a data path to an ADB switcher from an application server that allows the application server to directly access query results in the ADB switcher without communicating across the network.

Therefore, Applicants submit that claim 1 is not anticipated by Eldreth, because Eldreth fails to teach at least each element of the independent claim 1. Furthermore, independent claims 17, 28, 30, 31, 33, 41 and 42 should also be allowable over Eldreth for at least similar reasons as claim 1.

Claims 8, 27, 33 and 41 are also allowable for additional reasons. For example, Applicants' claim 8 recites

"when the return path is chosen to be the storage system, the results are sent to the storage system as a file and an address in the storage system for the file is provided to the application system using the first connection." (Applicant's claim 8.)

According to the embodiment recited in claim 8, when the storage system is selected as the return path for the query results, the query results are sent to the storage system as a file, and an address in the storage system to locate the file containing the query results is then sent to the application system via the first network connection.

Applicants submit that Eldreth fails to teach at least transmitting an address of the query results to the application system via the first connection across the network as recited in claim 8. In Eldreth, the query results are transmitted at least across a network connection between the database system and the ADB switcher. (See Eldreth, Fig. 2, reference nos. 221-231.) The ADB switcher then formats a response based upon the query response and sends the formatted response to the application server via a network connection between the application server and the ADB switcher. The response sent by the ADB switcher may include the query results or the ADB switcher may store and/or manipulate data (col. 3, lines 32-38) and send the manipulated data to the application server as part of the response. The query results themselves, either in their original form as received by the ADB switcher, or in a manipulated form produced by the ADB switcher, are transmitted across multiple network connections in Eldreth. Thus, Eldreth only provides for sending a set of query results back to the application server and does not provide sending an address in a storage system where the query results are located as recited in claim 8. Therefore, Applicants submit that Eldreth fails to anticipate claims 8 for at least the reasons provided.

Applicants submit claims 27, 33 and 41 are allowable for a similar rationale as claim 8. Furthermore, claims 34-37 are also in condition for allowance at least due to their dependence from claim 33. Therefore, Applicants respectfully request that the rejection of claims 8, 27, 33-37, and 41 also be withdrawn.

Rejections under 103

Claims 9 and 14

Claims 9 and 14 were rejected under 35 U.S.C. §103(a) as being unpatentable over Eldreth in view of Luke.

Claims 9 and 14 depend from claim 1. Claims 9 and 14 are therefore allowable for similar reasons as independent claim 1. As described above, Eldreth fails to teach at least each element of independent claim 1. Furthermore, Applicants submit that Luke also fails to suggest or disclose these remaining features of independent claim 1.

As described above, claim 1 recites a system that includes a database system, an application system coupled to the database system via a first network connection, a storage system having a shared volume, a return path selector coupled to the database, a first data path to provide a connection between the storage system and the application system, and a second data path to provide a data connection between the database system and the storage system. The first data path enables the application system to directly access query results on the storage system without communicating via the first connection, and the second data path enables the database system to directly store query results on the storage system via the second data path without communicating via the first connection over the network.

Luke discloses methods and systems providing a digital network having a plurality of data storage elements, at least one client, and a switch element. The switch element may be operable to receive access requests from the client and provide access to data on the storage elements in response to one or more access requests. Luke, Abstract.

As described above, Applicants submit that Eldreth fails to disclose at least a system including: (1) a "first data path" that enables the application system to directly access query results on the storage system without communicating over a first connection over a network; (2) a "second data path" that enables the storage system to directly store query results

on the storage system without communicating over the first connection over the network, and (3) a "return path selector" that selects a return path from at least the first data path and the first connection over the network based upon one or more attributes of the query results as recited in claim 1. Applicants submit that Luke also fails to teach at least these limitations of independent claim 1.

Therefore, Eldreth and Luke, either alone or in combination, fail to disclose or suggest all of the features recited in independent claim 1. Dependent claims 9 and 14 depend from claim 1, and thus, should also be allowable at least due to their dependence from independent claim 1.

Claims 11-13, 22, 34-36

Claims 11-13, 22, 34-36 were rejected under 35 U.S.C. §103(a) as being unpatentable over Eldreth in view of Dar.

Claims 11-13, 22, 34-36 are allowable for similar reasons as independent claims 1, 17, and 33. As described above, Eldreth fails to teach at least each of the features recited in independent claims 1, 17, and 33. Applicants submit that the Dar also fails to suggest or disclose at least these features of independent claims 1, 17, and 33.

As described above, claim 1 recites a system that includes a database system, an application system coupled to the database system via a first network connection, a storage system having a shared volume, a return path selector coupled to the database, a first data path to provide a connection between the storage system and the application system, and a second data path to provide a data connection between the database system and the storage system. The first data path enables the application system to directly access query results on the storage system without communicating via the first connection, and the second data path enables the database system to directly store query results on the storage system via the second data path without communicating via the first connection.

Applicants submit that Dar discloses a method and system for improving the utilization of the typical database management system ("DBMS") client-server configuration. Applicants further submit that DAR discloses a Database Area Network ("DAN") architecture that includes a pool of database servers. The DAN includes a shared storage for storing DBMS

data that can be accessed by the database servers. See Dar, Figs. 4, reference no. 40 and Fig. 5, reference no. 50.

As described above, Applicants submit that Eldreth fails to disclose at least a system including: (1) a "first data path" that enables the application system to directly access query results on the storage system without communicating over a first connection over a network; (2) a "second data path" that enables the storage system to directly store query results on the storage system without communicating over the first connection over the network, and (3) a "return path selector" that selects a return path from at least the first data path and the first connection over the network based upon one or more attributes of the query results as recited in claim 1. Applicants submit that Dar also fails to disclose or suggest at least these limitations of independent claim 1.

Applicants submit that Dar fails to disclose or suggest at least a "first data path ... wherein the application system can directly access query results on the storage system without communicating via the first connection" as recited in claim 1. Dar does not disclose a first data path between the plurality of client devices (Dar, Fig. 4, reference no. 43; and Fig. 5, reference no. 53) and the data storage (Dar, Figs. 4, reference no. 40 and Fig. 5, reference no. 50) that would enable the client devices to access the data storage without communicating over the network. The database management systems of Dar (Dar, Fig. 4, reference no. 41) share access to the data storage , but Dar is silent as to the client devices having access to the data storage. See Dar, paragraph 0041.

Applicants also submit that Dar similarly fails to disclose at least "a second data path ... wherein the database system directly stores query results to the storage system via the second data path without communicating via the first connection" as recited in claim 1. Dar discloses a shared storage 40 that can be accessed by all database servers 41 for storing DMBS data. Dar, Fig. 1 and paragraph 0041. Dar, however, is silent as to the database systems directly storing query results on the storage system via the second data connection as recited in claim 1.

Applicants further submit that Dar fails to disclose or suggest a "a return path selector coupled to the database system for selecting a return path over which to return the results from queries made to the database system, the return path selector selecting from among at least the first connection over the network or the first data path between the storage system and the application system, wherein the return path selector determines a data path based upon one or

more attributes of the query results" as recited in claim 1. Dar is silent as to a "return path selector" for determining a data path for returning query results based upon one or more attributes of the query results. Furthermore, as described above, Dar is also silent as to the database storing query results in the data storage. Consequently, Dar also fails to disclose or suggest the return path selector recited in claim 1.

Therefore, Eldreth and Dar, either alone or in combination, fail to disclose or suggest all of the features recited in independent claim 1. Furthermore, independent claims 17 and 33 should also be allowable over the combination of Eldreth and Dar for at least the same rationale as claim 1. Furthermore, dependent claims 11-13, 22, 34-36 should also be allowable at least due to their dependence from independent claims. Accordingly, Applicants respectfully request that the rejections of claims 11-13, 22, 34-36 be withdrawn.

Claim 43

Claim 43 is rejected under 35 U.S.C. §103(a) as being unpatentable over Eldreth in view of Garimella.

Claim 43 is allowable for similar reasons as independent claim 42. As described above, Eldreth fails to teach at least each of the features recited in independent claim 42. Furthermore, Applicants submit that the Garimella also fails to suggest or disclose at least these features of independent claim 42.

Applicants submit that Garimella discloses a method, system, and program for performing an Input/Output operation with respect to a logical device capable of being accessed by multiple host systems. Metadata in the logical device that is required in order to access the data in the logical device is overwritten to prevent at least one host system from accessing the data in the logical device represented by the overwritten metadata. An I/O operation is performed with respect to the logical device. Valid metadata is written to the logical device to enable host systems to access the data in the logical device represented by the metadata. Garimella, Abstract.

As described above, Applicants submit that Eldreth fails to disclose at least a system including: (1) a "first data path" that enables the application system to directly access query results on the storage system without communicating over a first connection over a network; (2) a "second data path" that enables the storage system to directly store query results

on the storage system without communicating over the first connection over the network, and (3) a "return path selector" that selects a return path from at least the first data path and the first connection over the network based upon one or more attributes of the query results as recited in claim 1.

Applicants submit that Garimella also fails to disclose or suggest at least these features of claim 1. For example, Applicants submit that Garimella fails to disclose or suggest at least a "first data path" as recited in claim 42. Garimella does not disclose a first data path between the host devices (Garimella, Fig. 1, reference nos. 2a, 2b, and 2c) and the data storage (Garimella, Figs. 1, reference no. 11) that would enable the client devices to access the data storage to access query results without communicating over the network (Garimella, Figs. 1, reference no. 6).

Applicants also submit Garimella similarly fails to disclose at least "a second data path" as recited in claim 42. Garimella is silent as to a second data path between a database system and a storage device that would provide a data connection through which the database system directly stores query results to the data storage system without communicating over the network connection. Garimella is also silent as to a database storing query results in a storage system.

Applicants further submit that Garimella also fails to disclose or suggest a "return path selector for selecting a return path over which to return the results from queries made to the database system" as recited in independent claim 42. Garimella is silent as to a "return path selector" for determining a data path for returning query results based upon one or more attributes of the query results.

Therefore, Eldreth and Garimella, either alone or in combination, fail to disclose or suggest all of the features recited in independent claim 42. Accordingly, dependent claim 43 should also be allowable at least due to its dependence from claim 42.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 650-326-2400.

Respectfully submitted,

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